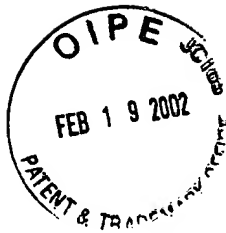


Allowed claims
Issue Fee Paid 12/14/01



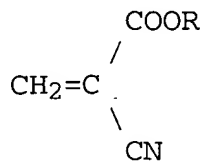
For: SEMICONDUCTOR DIE ATTACHMENT METHOD AND APPARATUS
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23. A semiconductor package comprising:
a portion of a leadframe;
a semiconductor die bonded to the portion of the leadframe; and

an adhesive layer between the portion of the leadframe and the die configured to bond the die to the portion of the leadframe, the adhesive layer comprising a cyanoacrylate adhesive or an anaerobic acrylic adhesive formulated to cure in contact with the die at a temperature of about 20°C to 30°C and in an ambient atmosphere in less than about 60 seconds, and a filler selected to improve a dielectric strength of the adhesive layer in the package.

24. The semiconductor package of claim 23 wherein the filler comprises SiO₂.

25. The semiconductor package of claim 23 wherein the cyanoacrylate adhesive has a formula:



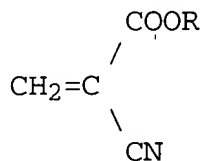
wherein R comprises a hydrocarbon group.

26. The semiconductor package of claim 23 wherein the portion of the leadframe comprises a mounting paddle and the die is bonded to the mounting paddle.

27. The semiconductor package of claim 23 wherein the leadframe comprises a lead-on-chip leadframe having a plurality of lead fingers and the die is bonded to the lead fingers.

28. The semiconductor package of claim 23 wherein the adhesive layer comprises a second filler selected from the group consisting of reinforcement fillers, catalyst fillers, heat conductive fillers, moisture resistance fillers and thermal stability fillers.

29. A semiconductor package comprising:
a portion of a leadframe comprising a mounting paddle and a plurality of lead fingers;
a semiconductor die attached to the mounting paddle; and
an adhesive layer between the mounting paddle and the die attaching the die to the mounting paddle, the adhesive layer comprising a cyanoacrylate adhesive formulated to cure in contact with the die at a temperature of about 20°C to 30°C in an ambient atmosphere in less than about 60 seconds and having a formula:



wherein R is a hydrocarbon group,

and a filler configured to improve a thermal conductivity, a mechanical strength, a dielectric strength, a moisture resistivity, or a thermostability of the adhesive layer.

30. The semiconductor package of claim 29 further comprising a catalyst on the leadframe or the die configured to accelerate curing of the adhesive layer.

31. The semiconductor package of claim 29 wherein the filler comprises a material selected from the group consisting of SiO_2 and SiC .

32. A semiconductor package comprising:
a portion of a lead-on-chip leadframe comprising a plurality of lead fingers;
a semiconductor die attached to the lead fingers; and
an adhesive layer attaching the die to the lead fingers, the adhesive layer comprising a cyanoacrylate adhesive or an anaerobic acrylic adhesive formulated to cure in contact with the die at a temperature of about 20°C to 30°C in an ambient atmosphere in less than about 60 seconds, and an electrically insulating filler configured to increase a dielectric strength of the adhesive layer.

33. The semiconductor package of claim 32 further comprising a catalyst on the leadframe or the die configured to accelerate curing of the adhesive layer.

34. The semiconductor package of claim 32 wherein the filler comprises SiO_2 .

40. A semiconductor package comprising:
a portion of a leadframe;
a semiconductor die attached to the leadframe; and
an adhesive layer attaching the die to the leadframe, the adhesive layer comprising an anaerobic acrylic adhesive formulated to cure in contact with the die at a temperature of about 20°C to 30°C in an ambient atmosphere in less than about 60 seconds, and a filler configured to improve a thermal conductivity, a mechanical strength, a dielectric strength, a moisture resistivity, or a thermostability of the adhesive layer.

41. The semiconductor package of claim 40 wherein the filler comprises a material selected from the group consisting of SiO₂ and SiC.

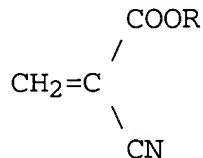
42. The semiconductor package of claim 40 wherein the portion of the leadframe comprises a mounting paddle and the die is attached to the mounting paddle.

43. The semiconductor package of claim 40 wherein the leadframe comprises a lead-on-chip leadframe comprising a plurality of lead fingers and the die is attached to the lead fingers.

44. The semiconductor package of claim 40 wherein the leadframe comprises a lead-on-chip leadframe comprising a plurality of lead fingers, the die is attached to the lead fingers and the filler comprises SiO₂.

45. A semiconductor package comprising:
a leadframe;
a semiconductor die attached to the leadframe; and
an adhesive layer attaching the die to the leadframe, the adhesive layer comprising a cyanoacrylate adhesive formulated to cure in contact with the die at a temperature of about 20°C to 30°C in an ambient atmosphere in less than about 60 seconds.

46. The semiconductor package of claim 45 wherein the cyanoacrylate adhesive has a formula:



wherein R comprises a hydrocarbon group.

47. The semiconductor package of claim 45 wherein the cyanoacrylate adhesive includes a filler.

48. The semiconductor package of claim 45 wherein the cyanoacrylate adhesive includes a dielectric filler.

49. A semiconductor package comprising:
a leadframe;
a semiconductor die attached to the leadframe; and
an adhesive layer attaching the die to the leadframe,
the adhesive layer comprising an anaerobic acrylic adhesive formulated to cure in contact with the die at a temperature of about 20°C to 30°C in an ambient atmosphere in less than about 60 seconds.

50. The semiconductor package of claim 49 wherein the anaerobic acrylic adhesive includes a filler.